Mathematical Geology

Volume 26, Number 1, January 1994

Contents

ARTICLES

Spatial Averaging of Hydraulic Conductivity Under Radial Flow Conditions 1
A. J. Desbarats

A Review of Methods Used to Determine the Fractal Dimension of Linear Features 23
Brian Klinkenberg

Extraction of Sedimentological Information via Computer-Based Image Analyses of Grey Shales in Carboniferous Coal-Bearing Sections of Indiana and Kansas, USA 47
Allen W. Archer

Practical Considerations in the Application of Simulated Annealing to Stochastic Simulation 67
Clayton V. Deutsch and Perry W. Cockerham

The Angle Measure Technique: A New Method for Characterizing the Complexity of Geomorphic Lines 83
Robert Andrle

On the Condition Number of Covariance Matrices in Kriging, Estimation, and Simulation of Random Fields 99
Rachid Ababou, Amvrossios C. Bagtzoglu, and Eric F. Woods

Restricted Kriging: A Link Between Sample Value and Sample Configuration 135
Guocheng Pan

Mathematical Geology

Volume 26, Number 2, February 1994

Contents

ARTICLES

Memorial to Felix Chayes 157
E. H. Timothy Whitten

Estimation of a Multidimensional Covariance Function in Case of Anisotropy 161
Leon Borgman and Li Chao

Textural Segmentation of Digital Rock Images into Bedding Units Using Texture Energy and Cluster Labels 181
Stefan M. Luthi

On a Controversial Method for Modeling a Coregionalization 197
P. Goovaerts

Universal Cokriging Under Intrinsic Coregionalization 205
Jeffrey D. Helterbrand and Noel Cressie

Permeability Tensors for Sedimentary Structures 227
G. E. Pickup, P. S. Ringrose, J. L. Jensen, and K. S. Sorbie

EDITOR'S NOTE 251

BOOK REVIEWS

Management of Geological Databases edited by Joseph Frizado 253
Reviewed by Gary L. Raines

Fractals in Geography edited by Nina Siu-Ngan Lam and Lee De Cola 255
Reviewed by James R. Carr

ASSOCIATION ANNOUNCEMENT 259

ERRATA 273

Mathematical Geology

Volume 26, Number 3, April 1994

Contents

ARTICLES

Spectral Simulation of Multivariable Stationary Random Functions Using Covariance Fourier Transforms 277
E. Pardo-Igúzquiza and M. Chica-Olmo

The Integral of the Semivariogram: A Powerful Method for Adjusting the Semivariogram in Geostatistics 301
Fréderick Delay and Ghislain de Marsily

Posterior Identification of Histograms Conditional to Local Data 323
André G. Journel and Wenlong Xu

Estimation of Background Levels of Contaminants 361
Anita Singh, Ashok K. Singh, and George Flatman

Comparative Performance of Indicator Algorithms for Modeling Conditional Probability Distribution Functions 389
P. Goovaerts

BOOK REVIEW

Principles of Mathematical Geology by A. B. Vistelius 413
Reviewed by C. John Mann

LETTERS TO THE EDITOR

Comments on "Cumulative Semivariogram Models of Regionalized Variables" and "Standard Cumulative Semivariograms of Stationary Stochastic Processes and Regional Correlation" by Zekai Şen 415
Donald E. Myers

Reply to Comments by Donald E. Myers 417
Zekai Şen

Mathematical Geology

Volume 26, Number 4, May 1994

Contents

ARTICLES

Geochemical Migration of Impurity Trace Elements and Resultant Fractal Distribution Patterns in Source Rocks 419
Yongzhang Zhou, Edward H. Chown, Guangzhi Tu, Jayanta Guha, and Huangzhang Lu

Estimation of Non-Ergodic Variograms and Their Sampling Variance by Design-Based Sampling Strategies 437
D. J. Brus and J. J. de Gruijter

Estimating Fractal Dimension of Profiles: A Comparison of Methods 455
John C. Gallant, Ian D. Moore, Michael F. Hutchinson, and Paul Gessler

SPECIAL SECTION

IAMG Silver Anniversary Meeting, October 10–15, 1993, Prague, Czech Republic, Session on Artificial Intelligence, Chaired by Ricardo Olea and Peter A. Swaby

The Application of Expert Systems to the Identification and Use of Microfossils in the Petroleum Industry 483
J. Athersuch, F. T. Banner, A. C. Higgins, R. J. Howarth, and P. A. Swaby

A Neural Network Approach to Geostatistical Simulation 491
P. A. Dowd and C. Saraç

Knowledge Based Systems for Risk Assessment of the Subsurface of Contaminated Sites 505
S. Heynisch, A. Pekdeger, B. Richter, M.-Th. Schafmeister, and W. Skala

BOOK REVIEWS

Computer Modeling of Geologic Surfaces and Volumes edited by David E. Hamilton and Thomas A. Jones 519
Reviewed by James R. Carr

Geophysical Field Theory and Method, Part A: Gravitational, Electric, and Magnetic Fields by Alexander A. Kaufman 523
Reviewed by Charles E. Glass

Sampling by Steven K. Thomson 525
Reviewed by Thomas A. Jones

Computers in Geology: 25 Years of Progress edited by John C. Davis and Ute C. Herzfeld 529
Reviewed by Donald E. Myers

Mathematical Geology

Volume 26, Number 5, July 1994

Contents

ARTICLES

Bias in Estimating Fractal Dimension with the Rescaled-Range (*R/S*) Technique 531
Colin P. North and David I. Halliwell

Unilateral ARMA Processes on a Square Net by the Herringbone Method 557
Benjamin F. Turner and W. E. Sharp

Joint Simulation of Multiple Variables with a Markov-Type Coregionalization Model 565
Alberto S. Almeida and André G. Journel

Evaluation and Comparison of Spatial Interpolators II 589
Dennis D. Weber and Evan J. Englund

Order Relation Correction Experiments for Probability Kriging 605
James R. Carr

Kriging with Strings of Data 623
Clayton V. Deutsch

LETTER TO THE EDITOR

Further Comment: Spatial Continuity Measures 639
Robert F. Shurtz

Mathematical Geology

Volume 26, Number 6, August 1994

Contents

ARTICLES

About the Specification of Erosion Flux for Soft Stratified Cohesive Sediments 651
Georges Chapalain, Y. Peter Sheng, and André T. Temperville

Notes on Growth Faults and Sedimentary Bed Motions 677
I. Lerche

Estimation of Statistical Parameters for Censored Lognormal Hydraulic Conductivity Measurements 717
Xian-Huan Wen

Robustness of Noise Filtering by Kriging Analysis 733
G. Bourgault

ASSOCIATION ANNOUNCEMENT

Dr. Václav Němec: Krumbein Medalist 753
Frederik P. Agterberg

Mathematical Geology

Volume 26, No. 7, October 1994

Special Issue: Quantitative Stratigraphy
Guest Editor: Frederik P. Agterberg

Contents

ARTICLES

Introduction 757
Frederik P. Agterberg

Searching for Long Cycles in Short Sections 759
W. Schwarzacher

Quaternary Fourier Stratigraphy: Orbital Templates and Milankovitch Anomalies 769
W. H. Berger

Cyclostratigraphic Calibration of Cretaceous Magnetic Polarity Events (Cismon, Southern Alps, Italy) 783
Helmut Mayer

Plio-/Pleistocene Climate Modeling Based on Oxygen Isotope Time Series from Deep-Sea Sediment Cores: The Grassberger-Procaccia Algorithm and Chaotic Climate Systems 799
Manfred Mudelsee and Karl Stattegger

Neptune: A Marine Micropaleontology Database 817
Dave Lazarus

Development of a Database System for the Management of Borehole Data: Experience and Lessons 833
I. Halleux

Some Tests of the Exxon Global Cycle Chart 843
John C. Tipper

Estimation of the Mesozoic Geological Time Scale 857
Frederik P. Agterberg

Mathematical Geology

Volume 26, Number 8, November 1994

Special Issue: Expert Systems and Artificial Intelligence in the Applied Geosciences
29th IGC Meeting, August–September 1992, Kyoto, Japan
Guest Editors: Roussos Dimitrakopoulos, Richard B. McCammon, and Tetsuya Shoji

Contents

ARTICLES

Preface 877
Roussos Dimitrakopoulos

Expert Systems for Automated Correlation and Interpretation of Wireline Logs 879
Ricardo A. Olea

GEMS: Geothermal Expert Modeling System 899
Madoka Harada, Shigeo Tezuka, Kazuo Hiyane, Masakatsu Sasada, and Nobuya Narita

Prospector II: Towards a Knowledge Base for Mineral Deposits 917
Richard B. McCammon

A Case Study of the Application of a Microcomputer-Based Favorability Evaluation System: Uranium Exploration in the Alligator Rivers Uranium Field, Northern Territory, Australia 937
T. Kobayashi, T. Semba, Y. Yamada, S. Williams, and Y. Kato

An Interactive System to Assist Mineral Identification in Ore Microscopy 961
Tetsuya Shoji and Hiroaki Kaneda

Prototype Development of GEOEXPLORER, a Knowledge-Based System for Supergene Deposits: Identification of Favorable Areas for Bauxite 973
Junfeng Luo, Wolfdietrich Skala, Markus Wagner, and Klaus Germann

Model-Free Estimation of Fracture Aperture with Neural Networks 985
Marek Kacewicz